



UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/14/95

09/17/95

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002,537,053

021196

NY001/0413

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EXAMINER

GURAKAY, K

ART UNIT

PAPER NUMBER

28729

DATE MAILED:

04/03/96

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/145,595

Applicant(s)

LEE, JI UNG

Examiner

Karabi Guharay

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 36-46 is/are pending in the application.
- 4a) Of the above claim(s) 1-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 36-46 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 14) ☐ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) }
- 16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.

- 17) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: _____

Art Unit: 2879

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-35 drawn to method for making a field emitter array device classified in class 445, subclass 50.
- II. Claims 36-46, drawn to field emitter array, classified in class 313, subclass 496.

Inventions of Group II and Group I are related as product and process of making it. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the product as claimed can be made by another and materially different process. For example, the product as claimed, can be made by (1) mechanically removing selected portion of the insulator layer or by (2) depositing insulator material in selected areas on the cathode substrate with the use of mask.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Mr. Edward J. Brooks on 3/15/00 a provisional election was made without traverse to prosecute the invention of group II,

Art Unit: 2879

claims 36-46. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-35 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP 606.01).

The following title --- FIELD EMISSION DEVICES HAVING STRUCTURE FOR REDUCED EMITTER TIP TO GATE SPACING--- is suggested.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 36-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud et al. (U.S. 5,653,619).

Art Unit: 2879

Regarding claim 36, Cloud et al. disclose a field emission device (see column 1, line 15) comprising a number of cathodes formed in rows along a substrate (11), a gate insulator (18) formed along the substrate and surrounding the cathodes (see Fig 1), a number of gate lines (15) formed on the gate insulator (18) (see column 1, lines 60-67), an anode (16) (see column 4, lines 6-7), the anode (16) being formed orthogonal and opposing the cathodes (see column 2, lines 13-14).

Though Cloud et al. do not exemplify the anode in form of strips (i.e. plurality of anodes) however, it is conventional to have number of anodes in matrix addressed array of cold cathode emission devices (see U.S. 5,675,210).

Method limitations in claim 36 and claim 37 have not been given patentable weight since the method of forming the device is not germane to the issue of patentability of the device itself (see MPEP 2113).

Regarding claim 38, Cloud et al. disclose that the number of cathodes (13) include polysilicon cones (see column 3, lines 60-66).

Regarding claim 39, Cloud et al. disclose that the cathodes (13) includes metal silicides (see column 7, lines 54-59).

Regarding claim 40, Cloud et al. disclose that the substrate (11) includes glass (see column 3, line 58).

Regarding claim 41, Cloud et al. disclose that gate lines (15) include refractory metals (see column 6, lines 1-2).

Art Unit: 2879

Regarding claim 42, Cloud et al. disclose that the number of gate lines (15) include doped silicon (see column 6, lines 2-3).

Claim 43 is rejected for the same reason as claim 36.

Claim 44 is rejected for the same reason as claim 37.

Claim 45 is rejected for the same reason as claim 39.

Claim 46 is rejected for the same reason as claim 41.

Other Prior Art Cited

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Doan et al. (U.S. 5,259,799); Kim (U.S. 5,675,210).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karabi Guharay whose telephone number is (703) 305-1971. The examiner can normally be reached on Monday-Friday 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (703) 305-4794. The fax phone numbers for the organization is (703) 305-3594.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Art Unit: 2879

K.G.
Karabi Guharay
Patent Examiner
Art Unit 2879

Vip Patel
Primary Examiner
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